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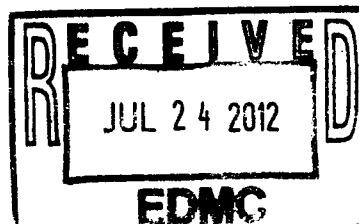
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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July 19, 2012

12-NWP-111

Mr. Thomas W. Fletcher,
Assistant Manager for Tank Farms Project
Office of River Protection
United States Department of Energy
P.O. Box 450, MSIN: H6-60
Richland, Washington 99352



Re: Resolution of the Department of Ecology's (Ecology's) comments on RPP-6711 Rev. 3C, *Evaluation of Hose-in-Hose Transfer Line (HIHTL) Service Life* and the Approval of Service Life Extensions of HIHTLs listed in Appendix X and Y of RPP-6711 in Support of 241-C-107, -108, -109, -110, and -112 Retrieval Operations

Dear Mr. Fletcher:

Ecology received letter ⁶¹⁰¹⁰⁸⁹ 12-TPD-0002 from the United States Department of Energy –Office of River Protection (USDOE-ORP) on January 23, 2012, requesting Ecology's written confirmation that Ecology's comments were adequately addressed in RPP-6711, Revision 3E. Ecology reviewed the attached enclosures:

1. RPP-6711, Rev. 3C Change Notice and Review Comment Record (RCR) *Evaluation of Hose-in-Hose Transfer Line (HIHTL) Service Life*
2. RPP-6711, Revision 3E.

After review of these enclosures, Ecology confirms that our comments on Appendices W, *Evaluation of Maximum HIHTL Hose Temperature*, and X, *Service Life Evaluation/Extension of HIHTLs (S/Ns I-68511-0-1, I-68511-0-2, I-19643-1, and I-19643-3) and Associated Jumpers (N/A, N/A, and I-50935-0-01)*, of RPP-6711, Revision 3C, were adequately addressed and incorporated in RPP-6711, Revision 3E.

Ecology met with USDOE-ORP, Meier Inc., ARES Inc., and Washington River Protection Solutions Inc. (WRPS) on May 25, 2011 to discuss changes to RPP-6711, Revision 3C that included the second service life extensions for the HIHTLs and Jumpers listed above. During that meeting, Ecology expressed concern regarding the HIHTL and Jumper re-extensions and suggested leak testing these lines prior to their use for future retrieval efforts. USDOE-ORP and WRPS agreed that leak testing was appropriate. Ecology visited the 241-C Farm July 13, 2011 to witness the leak testing of the HIHTLs that are currently in use and will be used to support retrieval efforts at the 241-C Farm. Enclosed is Ecology's field report documenting this testing effort. (Enclosure 1)

3.2.4, T.2.6



Mr. Thomas W. Fletcher
July 19, 2012
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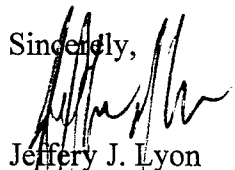
Ecology approves service life extension for the HIHTLs and Jumpers listed in Appendices X and Y of RPP-6711, including:

HIHTL I-68511-0-1	HIHTL I-57780-0-02	Jumper I-83578-0-02
HIHTL I-68511-0-2	HIHTL I-57780-0-03	Jumper I-83578-0-03
HIHTL I-19643-1	HIHTL I-57780-0-04	Jumper I-83578-0-04
HIHTL I-19643-3	HIHTL I-65376-0-01	Jumper I-83578-0-05
Jumper (N/A, N/A, and I-50935-0-01)	HIHTL I-65376-0-02	Jumper I-83578-0-06
HIHTL I-12023-0-01	HIHTL I-65376-0-03	Jumper (C-108 Pit)
HIHTL I-12023-0-02	HIHTL I-71065-0-01	Jumper (C-109 Pit)
HIHTL I-12023-0-03	HIHTL I-95247-0-02	Pump (C-108)
HIHTL I-12023-0-05	Jumper I-68927-0-01	Pump (C-109)
HIHTL I-12023-0-06	Jumper I-68927-0-02	Pump (C-110)
HIHTL I-57780-0-01	Jumper I-68927-0-03	Pump (C-110).

To facilitate the immediate use of these components, Ecology had previously sent an email authorizing the use of these HIHTLs and Jumpers for retrieval efforts (Enclosure 2).

If you have any questions, please contact me at 509-372-7914 or jeff.lyon@ecy.wa.gov, or Michelle Hendrickson, PE at 509-372-7970 or michelle.hendrickson@ecy.wa.gov.

Sincerely,


Jeffery J. Lyon
Tank System Operations and Closure Project Manager
Nuclear Waste Program

mh/dm
Enclosures (2)

cc electronic:

Jeff Van Der Pol, USDOE-ORP
Lori Huffman, USDOE-ORP
Chris Kemp, USDOE-ORP
Jeremy Johnson, USDOE-ORP

Mike Erhart, WRPS
Rob Piippo, MSA
Ken Niles, ODOE
Michelle Hendrickson, Ecology

cc: Dennis Faulk, EPA
Mike Peloquin, WRPS
Stuart Harris, CTUIR
Gabriel Bohnee, NPT
Russell Jim, YN

Susan Leckband, HAB
Administrative Record: 241-A/SST/
WRPS Correspondence Control
Environmental Portal, LMSI
USDOE-ORP Correspondence Control



INTERIM ASSESSMENT REPORT

Operations/Construction Activities

A. GENERAL INFORMATION

Project:	241-C Hose-In-Hose Transfer Line (HIHTL) Leak Test		
Project Contact:	J. Scott Conrad	Contractor:	Washington River Protection Solutions (WRPS)
Review Date:	7/13/2011	Phone:	(509) 373-5976
Reviewer:	Michelle Hendrickson, CHMM, PE		
USDOE Project:	US Department of Energy-ORP		
USDOE Contact:	Chris Kemp/Jeff Van Der Pol		
Prime Contractor:	Tank Farm Contractor - WRPS		
Project Manager:	Gary Hopkins-Ops Manager WRPS	Phone:	(509) 373-1166
Location:	WMA C, 200 East Area		
Scheduled Start Date:	6/1/2011	Actual Start Date:	7/13/2011
		Completion Date:	7/17/2011
Contract Amount:	N/A		
Sub-Contractor:	Meier for IQRPE Services		
Location:	241- C Single Shell Tank Farms, 200 East Area, Hanford Nuclear Reservation, Richland, WA		

PROJECT DESCRIPTION:

Ecology met with USDOE-ORP, Meier, ARES, and WRPS on May 25, 2011 to discuss changes to RPP-6711, Revision 3-C including:

1. Updated Heat Trace and Copper Tape Information (added to Appendix F)
2. Evaluation Efforts of Maximum HIHTL Hose Temperature based on recorded ground temperatures (added to Appendix W)
3. Service Life Evaluation Information for Extension of HIHTLs S/N:
 - a. I-68511-0-1
 - b. I-68511-0-2
 - c. I-19643-1
 - d. I-19643-3
 - e. Associated Hose Jumpers including I-50935-0-01.

As several of these lines had been extended through the waiver process by Ecology, USDOE-ORP, and WRPS as part of Appendix U of RPP-6711 in April of 2009. Ecology voiced concerns regarding re-extension of these lines and jumpers. During that meeting, WRPS stated that they planned to install these lines at risk. Ecology suggested leak testing these lines prior to installation and requested to witness the HIHTL leak testing of these lines that would be used for 241-C-108 Hard Heel Retrieval. Hard Heel retrieval of 241-C-108 will consist of two caustic additions of 19 Molar Sodium Hydroxide, followed by two water washes. This should remove enough material to reach the TPA requirement of 360 ft³.

B. RECORDS AND PROCEDURES

1. Personnel Contacted During Assessment

	<u>Name</u>	<u>Title or Duties/Organization</u>	<u>Phone</u>
a.	J. Scott Conrad	Environmental Field Representative /WRPS	373-5976
b.	Earl Petersen	IQRPE Representative/Meier	735-1589
c.	Curt Reichmuth	Project Manager/WRPS	376-4796
d.	Jim Drake	RCT/WRPS	531-9933

2. Progress

- a. Scheduled Percentage 85% during field visit, 100% completed on 7/17/2011

	Yes	No	NA	See Remarks
3. Stockpiled equipment or materials				
a. Records adequate?	X	<input type="checkbox"/>	<input type="checkbox"/>	X
b. Protected?	X	<input type="checkbox"/>	<input type="checkbox"/>	X
4. As-built information up to date?	X	<input type="checkbox"/>	<input type="checkbox"/>	X
5. Operations/Construction logs up to date?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Adequate involvement in change orders?	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
7. Change orders appropriate and submitted to Ecology?	X	<input type="checkbox"/>	<input type="checkbox"/>	X
8. Shop drawings procedure adequate?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Permit No/TPA Requirement.: <u>SST and DST permits, HIHTL Waiver Process and Management Plan RPP-12711, and support approval of Extension of lines (RPP-6711, Appendix X)</u>				

C. OPERATIONS/CONSTRUCTION

Rather than install various HIHTLs and jumpers at risk, WRPS decided to leak test lines I-68511-0-1, I-68511-0-2, I-19643-1, I-19643-3, and associated hose jumpers including I-50935-0-01. The HIHTLs and associated jumpers were scheduled to be leak tested in early June 2011. However, operations were diverted to installation of the Mobile Arm Retrieval (MARs) unit and leak testing was postponed. Leak testing was initiated in the WMA C on July 13, 2011 for all lines unless otherwise noted.

Ecology arrived at WMA C in the late morning, completed necessary safety requirements and entered WMA C shortly after noon. Ecology witnessed the leak test of the HIHTLs (unless otherwise noted) including:

- I-19643-1 or the supernatant return line from 241-C-108 to 241-AN-106, used for 241-C-108 Tank retrieval operations
- I-12023-0-02 or the line from SST 241-C-108 to Portable Diversion Pit C-209 used for 241-C-108 Tank retrieval operations
- I-34610-0-01 or the line from the Pump Skid Vessel #1 to 241-C-200 used for 241-C-104 Tank retrieval operations
- I-57780-0-04 or the line from Portable Diversion Pit 241-C-209 to Portable Valve Pit 241-C-104 used for 241-C-109 Tank retrieval operations
- I-12023-0-05 or the line from Portable Diversion Pit 241-C-209 to Portable Valve Pit 241-C-104 used for 241-C-109 Tank retrieval operations
- I-71065-0-01 or the line from Portable Diversion Pit 241-C-209 to Portable Valve Pit 241-C-104 used for 241-C-109 Tank retrieval operations
- I-12023-0-06 or the line from Portable Valve Pit 241-C-104 to Portable Diversion Pit 241-C-209 used for 241-C-109 Tank retrieval operations
- I-12023-0-01 (tested 7/17) or the line from Portable Diversion Pit 241-C-209 to 241-C-108 used for 241-C-108 Tank retrieval operations
- I-95247-0-02 or the line from Portable Diversion Pit 241-C-209 to 241-C-108 used for 241-C-108 Tank retrieval operations
- I-12023-0-03 or the line from Portable Diversion Pit 241-C-209 to 241-C-108 used for 241-C-108 Tank retrieval operations

To leak test these lines in WMA C, a water supply routed through the Portable valve box 104.

The actual leak testing was being witnessed by the Project Manager and the Independent, Qualified, Registered, Professional Engineer's (IQRPE) Representative within the job tent. Ecology did not enter the job tent, but viewed the work through a window.

During the leak test, Ecology asked if the HIHTLs and associated jumpers were also scheduled for a complete visual inspection. The Project Manager and Environmental Field Representative stated that the HIHTLs and associated jumpers were not schedule for a full visual inspection. A limited visual inspection of the HIHTLs and associated jumpers would be performed at the couplings during the leak testing. Ecology also inquired about the future duration of usage for these specific HIHTLs and associated jumpers. The Project Manager estimated that the 241-C-108 Hard Heel retrieval efforts would take 2 to 4 months in duration to perform the caustic additions and recirculations. It was unknown when the retrieval would begin, but a similar retrieval effort at 241-C-104 lasted for several months and included about one total month or 776 hours of pumping efforts.

The leak testing of the Sluicer #2 was cut short due to the loss of water flow. After unsuccessfully trying to diagnose the problem in the field, project personnel remained unsure if the lack of water flow was because of:

- An obstruction in the water delivery line or service connections.
- An obstruction in HIHTL I-95247-0-02/I-12023-0-03
- An obstruction in 241-C-108 Sluicer #2.

The job ended at approximately 1:30 PM due to the loss of flow. Follow-up efforts will include determining the cause of lack of flow and testing of the HIHTL. Ecology requested information regarding the follow-up efforts for HIHTL testing and information regarding the cause of flow blockage.

	Yes	No	NA	See Remarks
1. Comply with Plans and Specifications?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Field Test Being Accomplished?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Satisfactory Contractor Quality Control?	X	<input type="checkbox"/>	<input type="checkbox"/>	X
4. Inspection Documentation Satisfactory?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Site Condition (Drainage - Erosion)	X			
a. Orderly?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Dust control adequate?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Miscellaneous structures adequate?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Construction bypassing satisfactory?	<input type="checkbox"/>	<input type="checkbox"/>	X	X
7. Unsafe Conditions/Health Hazards Observed?	<input type="checkbox"/>	X	<input type="checkbox"/>	<input type="checkbox"/>
8. Is Project Construction on Schedule?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the Operations and Maintenance Documentation on Schedule?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the Maintenance Management System on Schedule?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Traffic control and traffic safety?	X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

B. 3.a. The IQRPE's Representative was present during the testing.

B. 3.b. All work was completed within a job tent.

B. 4. & B. 7. All updates are provided in Appendix X of RPP-6711

C. 3. The IQRPE's Representative, Earl Petersen, was present during the testing.

C. 6. No 241-C-108 Retrieval Operations. Only HIHTL leak testing.

Based on Ecology's request for information regarding the follow-up efforts for HIHTL testing and information regarding the cause of flow blockage, Ecology received an email from Mr. Jeff Van Der Pol, General Engineer, for USDOE-ORP. Mr. Van Der Pol stated:

On 7/13/11 HIHTL leak checks supporting C-108 retrieval operations were performed. Two of the HIHTL that were tested are currently in a waiver process to extend their service life from 7 to 10 years. The leak checks for those HIHTLs were completed satisfactorily. The leak check for the HIHTL connections going to C-108 Sluicer Box #2 (HIHTL # I-95247-0-02 & I-12023-0-03) could not be completed because flow through the pathway indicated in the work package could not be maintained. It was determined that there was a blockage in the sluicer. This was determined by noting the amount of water delivered by the raw water skid, calculating the fluid volume of the system up to the suspected blockage point and comparing the two values. The values were nearly identical and well within any reasonable level of uncertainty. On 7/17/11 two attempts were made to unplug the sluicer by flowing water through the system. During the second attempt to unplug the sluicer, pressure was measured at 125 psig with no flow through the system and no pressure drop for 10 minutes. All relevant connections were inspected as per the work package and none were leaking. WRPS Engineering determined that this constituted a satisfactory leak check in lieu of a system flow leak check.

Attached are the project Engineering Change Notice diagrams and photos of the transfer operation.

Assessment Completed:

Project Engineer's Signature

Date

Hendrickson, Michelle (ECY)

From: Hendrickson, Michelle (ECY)
Sent: Wednesday, September 14, 2011 4:42 PM
To: 'Peloquin, Michael G'; 'Erhart, Michael F'; Johnson, Jeremy M
Cc: 'jpashbaugh@meierinc.com'
Subject: FW: Ecology concurrence with IQRPE approval for HIHTL (as present in Appendix X and Y) service life extensions

Gentlemen~

For your files.

Thanks,
Michelle

From: Hendrickson, Michelle (ECY)
Sent: Wednesday, September 14, 2011 4:40 PM
To: Lyon, Jeffery (ECY)
Cc: Whalen, Cheryl (ECY); Uziemblo, Nancy (ECY); Wold, Kristi (ECY); Qiu, Hans (ECY)
Subject: Ecology concurrence with IQRPE approval for HIHTL (as present in Appendix X and Y) service life extensions

Jeff~

Yesterday I met with Mr. Mike Peloquin regarding a path forward and responses to my comments on Appendices F,W, and X of RPP-6711, Rev 3-C "Evaluation of HIHTLS Service Life" for the Thermocouple specification information in "Heat Trace and Copper Tape Information", change in temperature calculations in "Evaluation of Maximum HIHTL Hose Temperature", and Service Life Evaluation/Extension of HIHTLS (S/N I-68511-0-1, I-68511-0-2, I-19643-1, and I-19643-3, and associated jumpers including I-50935-0-1), respectively.

Mike brought with him an ORP/Ecology Change Notice that reflected RPP-6711, Rev. 6-C would be updated to incorporate the comment resolutions described in the attached RCR. The RCR contained my comments and appropriate resolutions with exception to a few minor comments that were discussed and resolved during the HIHTL meeting held 9/7/11 at the Ecology office.

As I previously noted, I concur with the IQRPE's recommendation for service life extension of the above named HIHTLS and associated jumpers. I recommend you send this email approval for the usage of these HIHTLS and associated jumpers in the upcoming retrieval efforts to USDOE-ORP and WRPS prior to receiving the updated Appendix X of RPP-6711, Rev. 3-C to facilitate retrieval schedules. USDOE-ORP and WRPS have committed to revising Appendix X of RPP-6711, Rev 3-C with these modification and in this situation, Ecology feels that usage of the hoses and jumpers should not be delayed while to document is undergoing revision.

It should be noted that these HIHTLS and associated jumpers did pass their leak test on 9/6/11.

During the visit yesterday, Mike also provided the C-107 Independent Integrity Assessment Report (IAR) for Appendix X and the Service Life Evaluation For Selected C-Farm HIHTLS and Jumpers, Independent Assessment Report for Appendix Y, both of which were certified by an IQRPE. Upon reviewing these documents I noted that a few HIHTLS are expected to age faster due to anticipated C-107 radiation doses of 425 Rad/hr.

I had a few questions, so I telephoned Mr. Jay Ashbaugh of Meier Architecture•Engineering, the IQRPE that reviewed both Appendix X and Y for clarification. Mr. Ashbaugh stated that he and his team performed a calculation for service life at the C-107 radiation dose level for all of the Hoses listed in Appendix X as well as those listed in Appendix Y. As you remember, Ecology also had that same comment due to the change in tank retrieval order. Thus, as retrieval efforts were changed, the C-107 parameters were not evaluated for the HIHTLs listed in Appendix X; rather only the C-108 and C-112 parameters.

The IQRPE determined that the HIHTLs' calculated service life is "shorter" due to the higher C-107 radiation levels than the service life calculated strictly by Miner's Rule for Temperature and Pressure parameters. The IQRPE also stated that the lines experiencing the higher radiation levels from C-107 would need to be removed by 8/2012 or 10 years from the Manufacture Date. This service life end date will occur a few to several months before the service life calculated end date due to higher radiation exposure. It was noted by both the IQRPE and WRPS that an Engineering Change Notice is being drafted to include this information into Appendix X, resolving the comment from both Ecology and the IQRPE.

After further review of the IQRPE's recommendation to extend the service life of the components in Appendix Y and follow-up discussion with the IQRPE regarding the additional parameters reviewed, I had no other comments or concerns. I concur with the IQRPE's recommendation to extend the service life of the following HIHTLs, jumpers, and pump flexible hose assemblies as noted in Table 1 of the IAR attached to Appendix Y. These components include:

- HIHTL I-12023-0-01
- HIHTL I-12023-0-02
- HIHTL I-12023-0-03
- HIHTL I-12023-0-04
- HIHTL I-12023-0-06
- HIHTL I-57780-0-01
- HIHTL I-57780-0-02
- HIHTL I-57780-0-03
- HIHTL I-57780-0-04
- HIHTL I-65376-0-01
- HIHTL I-65376-0-02
- HIHTL I-65376-0-03
- HIHTL I-71065-0-01
- HIHTL I-95247-0-02
- Jumper I-68927-0-01
- Jumper I-68927-0-02
- Jumper I-68927-0-03
- Jumper I-83578-0-02
- Jumper I-83578-0-03
- Jumper I-83578-0-04
- Jumper I-83578-0-05
- Jumper I-83578-0-06
- Jumper (C-108 Pit)
- Jumper (C-109 Pit)
- Pump (C-108)
- Pump (C-109)
- Pump (C-110)
- Pump (C-110)

Please do not hesitate to contact me should you have any questions or concerns,

Michelle Hendrickson CHMM, PE
Nuclear Waste Program
WA Department of Ecology